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ABSTRACT

The two major components in the Theory of Work Adjustment are the individual and the work environment. This theory is an individual-environment matching model with four basic components: (1) the work personality of the individual, (2) the work environment, (3) measured work adjustment, and (4) work adjustment outcomes. The individual's work personality is defined by two major sets of structural components: his abilities and his needs. The work environment is also defined in terms of two major sets of variables: abilities required for successful performance and rewards or reinforcers. Work adjustment can be measured by job satisfaction and job satisfactoriness. The instruments used for operationalizing the Theory of Work Adjustment are: (1) for abilities, those tests used by the U. S. employment service; (2) for job satisfactoriness, the Minnesota Satisfactoriness Scale (MSS); (3) for job satisfaction, the Minnesota Satisfaction Questionnaire (MSQ); (4) for vocational needs, the Minnesota Importance Questionnaire; and (5) for occupational reinforcers, the Minnesota Job Description Questionnaire. The development and use of these tests are presented. Implications for further use are given including actual use in industrial psychology. (KJ)

Occupational Reinforcers, Vocational Needs, and Job Satisfaction

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The work Adjustment Project of the University of Minnesota is concerned with the problems of man in the world of work. Like the related field of Industrial Psychology, it derives from the early work in vocational psychology of Viteles, with his development of the "job psychograph", and the work of Paterson and his colleagues in the Minnesota Employment Stabilization Research Institute of the middle thirties. In more recent years, the work of the British psychologists, such as Alec Rodger and Alistair Heron are reflected in the Work Adjustment Project, as well as recent American research and theory relating to job satisfaction.

While a large part of Industrial Psychology continues to be concerned with problems of employee selection, whether it be for initial hiring or promotion, the placement function in personnel work assumes more importance with the increasing complexity of present-day society. The Work Adjustment Project is concerned with this problem of placement--with helping one individual to find his place in the complex world of work.

Work Adjustment Project research has been generously supported for over ten years by the Social and Rehabilitation Service (formerly the Vocational Rehabilitation Administration) of the U. S. Department of Health, Education, and Welfare. Its mission is to develop a psychology of work and to implement it with the appropriate technology so that the disabled individual will be assisted in choosing jobs, occupations and careers in which he will be optimally adjusted. Our methods and measuring instruments have been developed to be applicable also to the vocational counseling of the non-disabled. Our techniques and findings have implications for problems of selection, placement and individual-organization interaction as they are studied by the Industrial Psychologist.

The Theory of Work Adjustment

Research in the Work Adjustment Project is guided by a conceptual framework entitled the Theory of Work Adjustment (Dawis, England and Lofquist, 1964; Dawis, Lofquist and Weiss, 1968). The two major components in the theory are the individual and the work environment. The theory is interactionist in the sense that the individual and the environment interact with each other--the individual can change the environment and the environment can change the individual. The theory is both stable and dynamic. We can predict an individual's probable work adjustment status at one point in time. We also will be able to make predictions of how an individual might progress

through a series of work environments and how both he and the environment might change as a function of that sequence of events. The Theory of Work Adjustment is concerned with both style and structure of the work personality and the interaction of these with work environments in the process of adjustment to work. We are concerned with the development of the work personality, the stability of the work personality, and the effects on the work personality of an individual when the work environment is radically changed, as happens in company reorganization, job transfers, and in a broader sense in employment and retirement.

A schematic representation of some major components of the Theory of Work Adjustment is shown in Slide #1*. This schematic illustration emphasizes our Viteles-Paterson heritage. Our theory is an individual-environment matching model. It revolves around four basic components: 1) the work personality of the individual; 2) the work environment as measured for a variety of job possibilities; 3) measured work adjustment, as defined by job satisfaction and job satisfactoriness; and 4) work adjustment outcomes, in terms of tenure outcomes on specific jobs.

The individual's work personality is defined by two major sets of structural components: his abilities and his needs. In addition, there are components of work personality style which are not illustrated in this diagram. The abilities with which we are concerned are those which have relevance for vocational adjustment. Based on over fifty years of research in vocational-industrial psychology we measure such abilities as verbal, numerical, spatial and finger and manual dexterity. These and many other abilities have been shown to be related to job performance and job adjustment. One of our major projects now is to develop better and more efficient methods for measuring all the vocationally-relevant abilities of an individual.

The second set of structural components of the individual's work personality, his vocational needs, has been our major area of concern for the last five years or so. We shall examine our methods and results in this area, in some depth, shortly.

The work environment, like the work personality, is defined in terms of two major sets of variables. Ability requirements of a job are those abilities which are required for successful performance in a job. They are usually expressed in terms of some minimal levels. For example, the occupation of Watchmaker may require that an individual have fine finger dexterity superior to that of 98% of the general population, and that his eye and hand coordination be in the upper 5%. On the other hand, the occupation

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* References to the materials shown as slides are listed at the end of the paper. For example, the reader will find the material used for slide #1 on page 12 of monograph XXIII of the Minnesota Studies and Vocational Rehabilitation, entitled "A Theory of Work Adjustment (a revision)".

of High School Mathematics Teacher may require, for successful performance, verbal ability in the upper 5%, arithmetic ability in the upper 1% and clerical ability in the upper 8%.

Just as occupations can be differentiated in terms of the abilities that they require for successful performance, they can also be differentiated in terms of the reinforcers, rewards or satisfactions that they provide. This has been a second major thrust in the Work Adjustment Project and we will return to it shortly.

An individual's work adjustment status at any point in time can be assessed by measuring his job satisfaction and job satisfactoriness. Satisfactoriness includes such things as his performance, his conformance to company rules and regulations, his personal adjustment, and his dependability. Satisfactoriness is the organization's assessment of the individual; the individual is evaluated by representatives of the organization in terms of how well he meets the organization's needs on a variety of dimensions.

Satisfaction, on the other hand, is the individual's assessment of the environment in terms of how well it meets his needs. Satisfaction can be expressed in a general sense, i.e., "in general I like the job of College Professor", or it can be expressed in terms of its components, e.g., "while I like my job in general, (i.e., it probably meets most of my needs) I'm not too happy about the amount of money it provides (relative to my need for money), the working conditions aren't ideal (I prefer an air-conditioned office), but I'm very happy with the opportunities to use my abilities and to be creative." While applications of our theory currently use general satisfaction as a criterion for the prediction of work adjustment outcomes for individuals, accurate evaluation of an individual's work adjustment status at any point in time requires measurement of his satisfaction/dissatisfaction with specific aspects of the work environment. In the same way, the diagnosis of work adjustment status of any individual requires measurement of his satisfactoriness on such indicators as performance, conformance, personal adjustment and dependability. Work Adjustment Project research has shown that satisfaction and satisfactoriness are uncorrelated indicators of work adjustment (Weiss, Dawis, England and Lofquist, 1965).

Tenure outcomes, according to our theory, can be divided into two types: voluntary and involuntary. Excluding, for the moment, such factors as economic conditions, the labor market, the existence of labor union contracts and the like, voluntary tenure decisions--whether an individual will quit a job or remain--are primarily a function of his job satisfaction. Involuntary tenure decisions--whether an individual is to be retained or promoted, transferred or fired--are primarily a function of his satisfactoriness. The individual who is highly satisfactory is likely to be promoted; marginal to low satisfactoriness may cause the organization to

transfer the individual; very low satisfactoriness will lead to discharge. In the satisfaction area, the highly satisfied individual will remain on the job; the individual whose job satisfaction is low will quit.

For the individual who does not remain or is not retained, the theory aids in prediction of his movement to alternative job environments. The new job environment has a set of ability requirements and a reinforcer system, both of which are structured to some extent by the organization. Prediction of an individual's satisfactoriness is accomplished by determining the correspondence between his abilities and the ability requirements of his job. The individual whose measured vocational ability levels correspond closely to those required by the job is likely to be judged to be satisfactory on the job; this part of the theory has been researched for several decades with the current status adequately summarized by Ghiselli (1966). Granted the level of prediction is not outstanding, but technical innovations in measurement of individual abilities, improvements in methods of determining ability requirements, improvements in criterion measurement and inclusion of some measures of personality style of adjustment combined with new methods of prediction, should be able to eliminate our prediction plateau and permit us to make more accurate individual predictions of satisfactoriness.

The major focus of Work Adjustment Project research has been in the other half of the diagram. We have been concerned with predicting an individual's job satisfaction, where job satisfaction is a function of the correspondence between an individual's needs and the reinforcers in the work environment.

Our tools for operationalizing the Theory of Work Adjustment are shown in Slide #2. On the abilities side, we are currently using standard tools developed by the U.S. Employment Service. These are the General Aptitude Test Battery (U.S. Dept. of Labor, 1962a) to measure an individual's vocational abilities, and the Occupational Aptitude Patterns (U.S. Dept. of Labor, 1962b) to measure ability requirements. Job satisfactoriness, including the various components mentioned earlier, is measured by our Minnesota Satisfactoriness Scales (Weiss, et al, 1965). We measure job satisfaction by our Minnesota Satisfaction Questionnaire (Weiss, Dawis, England and Lofquist, 1968), in terms of twenty separable components of job satisfaction in addition to a general satisfaction score. Vocational needs are measured by our Minnesota Importance Questionnaire (Weiss, Dawis and Lofquist, 1967), and Occupational Reinforcer Patterns by our Minnesota Job Description Questionnaire (Borgen, Weiss, Dawis and Lofquist, 1968a, 1968b). Let us now turn our attention to the latter two innovative techniques.

Occupational Reinforcer Patterns

Our objective in developing Occupational Reinforcer Patterns was to describe work environments in terms of the kinds of rewards,

reinforcers or satisfiers that differentiate one work environment from another. We began essentially with those aspects of job satisfaction measured by our Minnesota Satisfaction Questionnaire. We reasoned that if individuals showed different levels of job satisfaction, then it was likely that these environments differed in terms of the kinds of satisfiers or reinforcers they provided. Using the dimensions measured by the Minnesota Satisfaction Questionnaire (MSQ) we developed the Minnesota Job Description Questionnaire (MJDQ).

The MJDQ is designed to obtain descriptions of work environments in terms of 20 possible reinforcers identified in job satisfaction studies plus a 21st added because of the nature of our measuring instrument (Slide #3). The first 20 of these scales are the same as those measured by our MSQ.

The MJDQ uses one statement to represent each dimension. Our scaling approach is that of pair comparisons using a multiple rank orders (balanced incomplete block) design. The rater is asked to rate a specific job, e.g., plumber, accountant, using 21 rating blocks of five statements each (slide #4). This permitted us to do classical pair comparisons scaling giving the relative distances between stimuli as distributed around an arbitrary zero point. But we felt the need to identify a more meaningful zero point so that we could specify which characteristics were descriptive of a given occupation and which were not. To do this, we used a method presented by Gulliksen (1964) in which each of the 21 stimuli in a pair comparison experiment or instrument are rated on a categorical basis rather than a relative basis (slide #5). These 21 categorical responses then become the 22nd stimulus being scaled, and the pair comparison scaling procedure continues in its usual fashion. To obtain scale values we used Guilford's (1954, p. 169-170) short-cut method which is based on the mean number of "votes for" a stimulus, or the average number of times each stimulus is chosen over all others by a group of raters. Our raters for our first 81 ORPS were supervisors of each of the 81 jobs.

The result of the pair comparison procedure is two sets of scale values (Slide #6). The unadjusted scale values include a value for the neutral point. To obtain the adjusted scale values, the unadjusted neutral point is subtracted from each of the scale values so that all values above the neutral point are positive and all below are negative. By this procedure, all positive scale values mean that the stimulus was judged (by the composite group of raters) to be descriptive of that job; negative scale values identify characteristics which are not descriptive of the job.

Since we developed these ORPs for use primarily by vocational counselors, we felt a visual presentation would help them utilize this information. Slide #7 is a visual representation of the adjusted scale values for the occupation of Fire Fighter as rated by 49 supervisors (Captains and Chiefs) in the Twin Cities area.

Highest scale values are for Social Service and Achievement. Those characteristics rated "not important" by the group include Activity, Independence, Authority, Autonomy and Compensation.

While the visual presentation makes the pattern somewhat clearer, we felt that for some persons or purposes a verbal presentation was also appropriate. Slide #8 shows a verbal translation of the salient characteristics of the Fire Fighter profile.

Can this approach differentiate occupations? Slide #9 shows the ORP for an occupation related to Fire Fighter, that of Policeman. Highest scale values for Policemen were Security, Social Service and Responsibility; lowest scores were on Authority and Compensation.

What about higher level occupations? Do the ORPs differ within white collar jobs? Slide #10 is the ORP for Computer Programmer. For this occupation, highest scale values were for Achievement and Ability Utilization, with Authority the only one judged "not descriptive". Slide #11 shows the ORP for Securities Salesman, for which Ability Utilization, Achievement and Compensation were highest. The Securities Salesman profile also has nine other scales rated "moderately descriptive", while Computer Programmer has four scales in that range.

More evidence for the ability of the MJDQ to differentiate occupations was derived from a cluster analysis of the 81 ORPs. The results of this cluster analysis are shown in slide #12. The nine clusters obtained from this analysis appeared to put similar occupations together and to separate occupations expected to be dissimilar. ORPs for the cluster of Service Occupations and the cluster of Manual Occupations are contrasted in Slide #13.

Are the ratings derived from our MJDQ reliable? Do different raters give similar ratings? To answer this question we randomly split the raters in each of the 81 occupations into two groups. An ORP was developed separately for each of the random subgroups, and the resulting profiles were correlated with each other. Slide #14 shows the split-group ORPs for High School Teachers. The two profiles are slightly different, but they correlate .96. Slide #15 shows the distribution of within-occupation split-group reliability correlations compared to the correlations between occupational groups. Split-group reliability correlations had a median of .91 vs. the median correlation of .55 between different occupations. We interpreted these data as evidence that one group of raters in a given occupation could provide ratings that are not very different from those obtained from other raters of the same occupation.

Some more recent, and as yet unpublished data, bear on this same point. Forty-two Minnesota supervisors of Social Caseworkers rated that job and an ORP was derived from their ratings. The same job was rated by 61 supervisors in the state of New York and an ORP was constructed.*

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* These data were generously provided by Dean David L. Levine of the School of Social Work, Syracuse University, New York.

Although there were several differences between the resulting ORPs, the two profiles correlated .71. While this correlation was not as high as the split-group reliabilities previously obtained, the differences seemed to be attributable to differences in the level of the supervisors; Minnesota supervisors appeared to be higher level supervisors than the New York group.

This led us to investigate whether supervisor characteristics were related to ORP ratings. Recent analyses on three variables--age of supervisor, number of employees supervised, and length of time as a supervisor--show that there are no systematic differences in ORPs related to any of these three variables. This result was obtained for jobs representing Service, Semi-skilled and Professional levels. Further analyses are in progress to discover which, if any, characteristics of the supervisors are related to their ratings on the MJDQ and the resulting ORPs.

While we chose supervisors to rate our first set of 81 occupations for ORPs, we have been concerned with the question of whether ratings on the MJDQ would be different if the ratings were done by employees. While more data are currently being collected and analyzed on this question, some recent results indicate that there are some differences on some jobs between the ORPs obtained from employees and those of their supervisors. For three occupations, Vocational Rehabilitation Counselor, Telephone Operator and Telephone Service Representative, we obtained ORP ratings on the MJDQ from both employees and supervisors. Mean ORP profiles differed somewhat on a few of the scales. However, the correlations between the ORPs resulting from the ratings of the two groups were .88, .90 and .93, indicating a high degree of similarity between the ORPs of supervisors and employees. These data suggest that supervisors and employees in these jobs perceive the reinforcers in the job similarily. The single scale score differences that we obtained, which seemed to represent primarily a level difference in the ratings of the two groups, appeared to be due largely to some dissatisfied employees who, as might be expected, rated more job characteristics as being "not present" on the job.

Vocational Needs

According to our Theory of Work Adjustment, in order to predict an individual's job satisfaction, we need to measure not only the differential reinforcer or reward characteristics of the work environment, but also an individual's preferences for these reinforcer conditions. We call these preferences an individual's vocational needs.

Our operationalization of the vocational needs concept is quite straightforward. In essence, we ask the individual to "draw us a verbal picture" of the kind of job he would most like to have, or the job in which he would be most satisfied. We call this his "ideal job". To help him think about relevant characteristics,

we provide him with 20 variables, which are the same variables measured in the MJDQ and the MSQ. To even further simplify the task, and to help the individual avoid problems of rating bias, as well as to assist him in structuring these variables into his own intra-individual hierarchy, we present the 20 variables to him in a complete pair comparison format.

We call this instrument our Minnesota Importance Questionnaire, or MIQ. Slide #16 shows the first page of the MIQ. The individual is directed to choose that statement of each pair which is more important to him in his "ideal job". The complete pair comparison gives us 190 choices to be made, a task requiring from 20 to 30 minutes for the average individual. As with the ORPs, however, we also wanted to know which characteristics were not important to him, in addition to the relative differences among the variables. Following the 190 pair comparison items, we then present the individual with the same 20 statements and ask him to make a statement concerning which of these characteristics are important or not important to him (slide #17). The resulting choices are scaled in the pair comparisons model to yield the individual's zero point, and all other scale values are adjusted with respect to the perceived zero point.

The result of this procedure is a profile of scale values for each individual (slide #18). This profile is non-normative. That is, it represents only this individual's pair comparison scaling of his ideal work environment. The zero point is this person's zero point; the scale values represent the z-transformation deviations from this person's zero point. The error bands are also derived only from this person's data, based on information existing in his circular triads (DeWitt and Weiss, 1969). This person described his ideal job in the following way: "The things that are most important to me are Security, Recognition, and Advancement. Security is the most important and I am very decided about that (no error band). Recognition is also very important; Advancement is third in importance, and I'm not sure exactly how high but it's somewhere in the high range. Other characteristics, like Company Policies and Practices, Working Conditions, Compensation and Creativity also verge on the very important. There are several characteristics that are not important. These include Authority, Social Status and Independence, with Moral Values, Social Service and Working Conditions verging on being not important."

Do different people describe their ideal jobs differently? While there are studies in the Industrial Psychology literature which show that the <u>average</u> importance of various job characteristics is similar across various groups, our data show wide individual differences in profiles on our MIQ. Slide #19 shows the MIQ profile for another individual. For this person, the most important characteristics are Social Service, Achievement, Ability Utilization and Variety. Characteristics which are not important are Authority, Social Status, Supervision-Human Relations, Creativiy, Co-workers and Company Policies and Practices. It is obvious that these two individuals have different preference systems and, therefore, are likely to be satisfied in different kinds of environments.

Research with the MIQ has shown that there is a wide amount of variety in the preferences of individuals for these 20 variables. Other research has shown MIQ profiles to be stable (Hendel and Weiss, 1968, 1970), and that MIQ scales differentiate groups in meaningful ways (Weiss, et al, 1965).

MIQ-ORP Correspondence

The utility of the MIQ in individual job, occupation or career placement depends on our ability to demonstrate that MIQ-ORP correspondence is predictive of job satisfaction. The task of matching one individual's MIQ with a variety of ORPs is not a simple one, either operationally or conceptually.

We currently use a very straightforward approach to operationalize this needs-reinforcer match for use by the vocational counselor. We take the MIQ profile and compute the D-squared (D^2) statistic (the simple sum of the squared distances) between an individual's MIQ profile and the 81 ORPs. The computer then sorts the 81 occupations in increasing order of D^2 (or decreasing correspondence) and prints the occupational titles for use by the counselor or personnel worker (slide #20). The first MIQ profile you saw (high Security, Advancement and Recognition) was most similar to the ORP for Screw-Machine Operator,Production. Other occupations whose ORPs were similar to his preferences included Salesperson, Shoe and Electrician. This person's MIQ was most dissimilar to the ORPs for Orderly and Landscape Gardener (slide #21). In terms of occupational families, he was most similar to the composite ORP for Manual Occupations, Service-Maintenance, and least similar to the ORP for Service Occupations, Personal.

The second profile you saw had preferences most similar to the occupations of Receptionist, Civil Serivice and Typist, Civil Service (slide #22). For individual No. 2, his preferences were least similar to the ORPs for Assembler and Pharmacist. In terms of job clusters, this person's preferences are closest to the ORP for Personal Service Occupations and furthest from the ORP for Professional-Technical Occupations (slide #23).

The crucial question, of course, is whether MIQ-ORP correspondence is related to job satisfaction. One study shows that there is a relationship between the two sets of variables (Betz, 1969). This study correlated five correspondence measures with general job satisfaction measures for three different occupational groups. Results were statistically significant for two of the three groups on several correspondence measures. Correlations of correspondence and satisfaction were as high as .45, with hit rates in the prediction of job satisfaction status (high/low) as high as .73.

Given these initial findings, which also showed differences in predictive accuracy among the different measures of correspondence used, we are now engaged in a search for a good measure

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of correspondence. There is an almost endless variety of measures of correspondence. In the earlier study we used D measures, of course, as well as correlations between profiles.

We also developed some "error band" methods in which some index of variability was plotted around the ORP scale values. These included standard error "error bands", standard deviation and inter-quartile range "error bands". The measure of correspondence, then, was the number of times, across the 20 common scales, that an individual's MIQ profile scale values fell within the error bands. The score, ranging from 0 to 20, was converted to a proportion for each person, and then to a correlation-like index using Holley and Guilford's (1964) G-index. These measures of correspondence, designed for simple application by vocational counselors, predicted satisfaction as well as the D-measures.

Currently, we are working with variations of the D^2 approach. Some preliminary data showed that the direction of the difference between the MIQ and an ORP was important in predictiong satisfaction. For these data, based on a small group of individuals, a directional D^2 measure showed differential prediction of satisfaction that was hidden by the total D^2. When total D^2 was correlated with general satisfaction we obtained a correlation of .02, indicating no relationship between correspondence and satisfaction. We then took all scales in which MIQ scores were higher than ORPs (i.e., need greater than reinforcer) and for each individual obtained an average D^2 of this type. For the same individuals this measure of correspondence correlated -.26 with satisfaction. The second breakdown of D^2 was the situation in which reinforcer was higher than need. In this case, the environment is apparently providing an "excess" of the reinforcer, beyond what the individual prefers. The correlation with satisfaction for this type of D^2 was .44.

These data suggest, then, that when the individual's preferences are not met by the reinforcers in the work environment, correspondence between needs and reinforcers is related to dissatisfaction; the less the correspondence, the higher the <u>dissatisfaction</u>. On the other hand, when the environment provides the individual with more than he prefers, the greater the discorrespondence score, the higher the satisfaction; or, the more the environment provides beyond what the individual prefers, the greater the satisfaction.

Since these data were analyzed on only one small group of employees, they merely suggest hypotheses for future research. We are currently replicating these analyses on several groups, in addition to looking at the relationship of a variety of other correspondence measures to various types of job satisfactions.

We are also looking at the validity of our correspondence measures in other ways. In another recent study a group of employed Social Workers completed the MIQ. We then computed an unweighted D^2 of their MIQ profiles with each of the 81 ORPs. For the total

group we obtained 81 mean D^2 scores, one for each of the 81 ORPs available at that time. If our system of MIQ-ORP matching has any validity, we would expect that the average D^2 correspondence for the Social Worker ORP should be fairly low for a group of employed Social Workers. The data showed that the mean D^2 for the Social Worker ORP for this group was the lowest of the 81 mean D^2 values. The Social Worker ORP was also ranked first in the means of the intra-individual rankings for this group of individuals.

This analysis has been replicated on several other groups. For three clerical occupations, the average D^2 for one occupation across each group of employees was 14th for two occupations and 19th for a third, with a maximum rank possible of 81. For a group of High School Counselors, the average D^2 for that ORP was 26th out of 81; for the same group the rank of their average correspondence with a Vocational Rehabilitation Counselor ORP was 11th.

Some non-supportive results were obtained for one all-female group. For this group of Cashiers, rank of the average D^2 with the Cashier ORP was 65 out of 81. In an attempt to further investigate variables related to MIQ-ORP correspondence, we looked at the data for the high job satisfaction Cashier group only. For this group, the rank of the average D^2 was 49, somewhat of an improvement over the 65 obtained for the total group. Slight additional improvement was obtained when this group was further refined by including only high satisfaction, long tenure employees (greater than 11 months); this yielded a rank for the average D^2 of 46. While the results for this one group are not highly supportive of our Theory of Work Adjustment, the majority of the evidence is supportive. For the Cashiers, our all-female group, the influence of the sex variable may be important. Additional analyses for other groups will look at sex differences in attempts to answer this question.

Future Plans

A considerable amount of research remains to be done so that our instruments and methods will have optimum practical utility in vocational counseling, industrial selection and placement, and in vocational-industrial research.

For both the MIQ and the ORPs we will be concerned with adding new dimensions and eliminating those that do not prove useful. It is obvious that our current 20 scales do not, by any means, cover the full range of reinforcers or satisfiers in all work environments. Perhaps we will finally arrive at a set of 75 or 100 or more variables that give us good coverage of the kinds of environmental conditions that keep men at work.

We will also look at what might be called "negative needs". These are the avoidance conditions that, if present, would cause a given individual to leave a work environment. So far we have been concerned with those conditions which, when present in the environment and preferred by an individual, will lead to high

satisfaction and therefore stable work behavior. For some individuals there may be conditions in the work environment which, if present, will cause the individual to be unhappy and leave. For example, while some individuals prefer to have a position of responsibility, others prefer not to have a high degree of responsibility. We need to be able to identify these kinds of individual differences in preferences and predict to the appropriate kinds of job behaviors.

There are obviously many areas to be investigated in the measurement of correspondence and the prediction of satisfaction. We need to find one or more correspondence measures that give consistent and optimal results across occupations. While our research thus far has used unit weighted D^2, we can try weighting the component D^2 values by optimization procedures for predicting satisfaction such as linear multiple regression. We will also try other, more rationally-based approaches to correspondence, extending our previous work with "error band" matching of MIQ and ORPs. Eventually we hope to arrive at a correspondence score "cut-off" value which will permit the user to make dichotomous predictions of "satisfied" and "not satisfied" with a high degree of confidence. Such data will be of use in personnel selection as well as vocational placement.

Implications for Industrial Psychology

While Work Adjustment Project research, with its emphasis on characteristics of the individual, has been oriented towards problems of vocational counseling, it has obvious implications for problems of Industrial Psychology.

First, we have shown that the old man-job matching model has some utility. With some new ideas and new measurement techniques, we can predict (at least on a concurrent basis, so far) how satisfied an individual is likely to be in a given job environment. The level of prediction is approaching that of the prediction of job performance. In other studies, we have shown that job satisfaction, after an initial adjustment period for some individuals, is a relatively stabel trait (Weiss, et al, 1968). Furthermore, measured job satisfaction is predictive of job termination (Taylor and Weiss, 1969). We therefore should be able to measure the needs of an individual prior to entry on a job and obtain some estimates of both his eventual job satisfaction and voluntary tenure with the organization. This kind of information should be quite helpful in industrial selection and placement.

We have also shown that certain characteristics of the job environment can be measured. Many of these characteristics are determined by the organization, including organizational policies and supervisory personnel. Many of these environmental characteristics can also be altered by the organization. Given these facts, of measureability and manipulability, the organization can now begin to "tailor" the job environment to meet the individual's needs.

By appropriate manipulation of the reinforcers in a given job environment it may be possible to change an individual's needs. This would be particularily appropriate for those individuals with little work experience for whom we can assume less stable need patterns.

By appropriate manipulation of the reinforcers in a given job environment it should be possible to increase an individual's satisfaction (and, therefore, probability of long tenure) as well as changing an individual's need structure to be in line with eventual promotional possibilities. This "tailoring" of work environments on an individualized basis, where possible, should result in a work force which is more satisfied and, in line with the goals of industry, likely to produce at a level beyond that of the less satisfied employee.

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* "A Theory of Work Adjustment refers to Dawis, Lofquist and Weiss (1968). "Occupational Reinforcer Patterns" refers to Borgen et al (1968a). "The Measurement of Occupational Reinforcer Patterns refers to Borgen et al (1968b).

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